

11/3/04

PTO/SB/16 (9-01)
Approved for use through 10/01/2002, OMB 0611-0013

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for Form 1449A/PTO

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheets

2

of

3

| | | Complete if Known |
|------------------------|--|-------------------------|
| Application Number | | To be assigned |
| Filing Date | | July 31, 2003 |
| First Named Inventor | | Hildeg E. Smith |
| Group Art Unit | | To be assigned |
| Examiner Name | | To be assigned J. Hines |
| Attorney Docket Number | | 2183-6055US |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | |
|---|------------|--|
| Examiner Initials * | Cite No. ^ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. |
| GW | | ALLGAUER et al., Relatedness of <i>Streptococcus suis</i> isolates of various serotypes and clinical backgrounds as evaluated by seroprotein analysis and expression of potential virulence traits. Journal of Clinical Microbiology, 2001, pp. 445-452, Vol. 39, No. 2. |
| GW | | BUSQUE et al., Immunization of pigs against <i>Streptococcus suis</i> serotype 2 infection using a live avirulent strain, Can J Vet Res., October 1997, pp. 273-79, Vol. 61, No. 8. |
| GW | | CHARLAND et al., <i>Streptococcus suis</i> serotype 2 mutants deficient in capsular expression, Microbiology, February 1998, pp. 335-32, Vol. 144, No. 2. |
| GW | | DATTAKARSEEMBL 'Deline' McHib, S. gordoni partial alpha 2 gene, cah3 gene & fbpA gene, Database accession No. X65164, 09/1/2001 |
| GW | | DE GREEFF et al., Contribution of Fibronectin-Binding Protein to Pathogenesis of <i>Streptococcus suis</i> Serotype 2, Infection and Immunity, Mar. 2002, pp. 1319-25, Vol. 70, No. 3. |
| GW | | DE GREEFF et al., Distribution of Environmentally Regulated Genes of <i>Streptococcus suis</i> Serotype 2 among S. suis Serotypes and Other Organisms, Journal of Clinical Microbiology, Sept. 2001, pp. 3261-68, Vol. 40, No. 9. |
| GW | | ELLIOTT et al., Streptococcal infection in young pigs. V. An emerging polysaccharide from <i>Streptococcus suis</i> type 2 with particular reference to vaccination against streptococcal meningitis in pigs, October 1980, pp. 275-85, Vol. 85, No. 2. |
| GW | | KAWABATA et al., Molecular cloning, sequence and characterization of a novel streptococcal phosphoglycerate dehydrogenase gene, Oral Microbiology and Immunology, 2000, pp. 58-62, Vol. 15. |
| GW | | KOLLMAN et al., Diversity of capsule polysaccharide synthesis gene clusters in <i>Streptococcus pneumoniae</i> , J. Bacteriol., May 1996, pp. 837-45, Vol. 178, No. 5. |
| GW | | KOSKINEN et al., Identification of two genes, cpxX and cpxY, with positive regulatory function on capsule expression in group B streptococci, FEMS Immunology and Medical Microbiology, 1998, pp. 159-68, Vol. 21. |
| GW | | MCHIB, Cloning and sequence analysis of hyaluronidase kinase from the oral bacterium <i>Streptococcus gordoni</i> , FEMS Microbiology Letters, 1996, pp. 103-10, Vol. 135. |
| GW | | MUNOZ et al., Characterization of IS1115, A Functional Insertion Sequence in <i>Streptococcus pneumoniae</i> , Journal of Bacteriology, Mar. 1998, pp. 1181-82, Vol. 180, No. 6. |
| GW | | QUESSY et al., Immunization of mice against <i>Streptococcus suis</i> serotype 2 infections using a live avirulent strain, Can J Vet Res., October 1994, pp. 299-301, Vol. 58, No. 4. |

| Examiner Signature | Date Considered |
|--------------------|-----------------|
| | 10/04 |

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[^]Unique citation designation number (optional). ^oApplicant is to place a check mark here if English language Translation is attached.

+Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Comptroller for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

3/27/07

PTO/SB/088(10-03)

Approved for use through 07/31/2006. OMB 0651-0011

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

7

of

7

| <i>Complete if Known</i> | |
|--------------------------|----------------|
| Application Number | 10/632,117 |
| Filing Date | July 31, 2003 |
| First Named Inventor | Hilda E. Smith |
| Group Art Unit | 1645 |
| Examiner Name | J. Hines |
| Attorney Docket Number | 2183-60551US |

NON PATENT LITERATURE DOCUMENTS

| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
|---------------------|-----------------------|---|----------------|
| CH | | COURTNEY et al., Cloning, Sequencing, and Expression of a Fibronectin/Fibrinogen-Binding Protein from Group A Streptococci, Infection and Immunity, Sept. 1994, pp. 3937-46, Vol. 62, No. 9. | |
| | | DATABASE EMBL [Online]. Streptococcus pneumoniae adherence and virulence protein A (pavA) gene, complete cds. 4 November 1999, XPO02332859, retrieved from EBI accession no. EM-PRO-AF181976. Database accession no. AF181976 | |
| | | HOLMES et al., The pavA gene of Streptococcus pneumoniae encodes a fibronectin-binding protein that is essential for virulence, Molecular Microbiology, 2001, pp. 1395-1408, Vol. 41, No. 6. | |
| | | DATABASE EMBL [Online]. S. gordonii partial sfb gene, espA gene & fbpA gene, XPO02332860 retrieved from EBI accession no. EM-PRO-SGSCHAG. Database accession no. X65164. 07/2001 | |
| | | CHRISTIE et al., Expression of fibronectin-binding protein FbpA modulates adhesion in Streptococcus gordonii, Microbiology, 2002, pp. 1615-25, Vol. 148. | |
| | | DE GREEFF et al., Contribution of Fibronectin-Binding Protein to Pathogenesis of Streptococcus suis Serotype 2, Infection and Immunity, Mar. 2002, pp. 1319-25, Vol. 70, No. 3. | |
| | | European Search Report, EP 02 71 1531 dated June 22, 2005. | |
| | | ELLIS, R.W. (Chapter 29 of "VACCINES" Plotkin, S.A. et al. (eds) published by W. B. Saunders company (philadelphia) in 1988, especially P. 371). | |
| | | HERBERT et al. eds. The Dictionary of Immunology, Academic Press, 1995. | |
| | | GOTTSCHEK et al., Journal of Clinical Microbiology, December 1999, pp. 4242, Vol. 37, No. 12. | |
| | | SEGURA et al., FEMS Immunology and Medical Microbiology, 1998, pp. 189-93, Vol. 12. | |
| | | REAMS et al., J. Vet. Diagn. Invest., 1996, pp. 119-21, Vol. 8. | |
| | | STAATS et al., Veterinary Research Communications, 1997, pp. 381-407, Vol. 21. | |
| | | BRAZEAU et al., Microbiology, 1996, pp. 119-21, Vol. 8. | |

| Examiner Signature | Date Considered |
|---|-----------------|
|  | 10/11/07 |

* EXAMINER: Initials/references considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 7 of 1

Complete if Known

| | |
|------------------------|----------------|
| Application Number | 10/632,117 |
| Filing Date | July 31, 2003 |
| First Named Inventor | Hilda E. Smith |
| Group Art Unit | 1645 |
| Examiner Name | J. Hines |
| Attorney Docket Number | 2183-60551JS |

NON PATENT LITERATURE DOCUMENTS

| Examiner initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
|---------------------|-----------------------|---|----------------|
| (JH) | | BAUMS et al., Clinical and Vaccine Immunology, Feb. 2009, pp. 200-208, Vol. 16, No. 2. | |
| | | CHOTHIBA et al., The Embo Journal, 1986, pp. 823-26, Vol. 5, No. 4. | |
| | | ©DATABASE EMBL Online McNab, S. gordoni partial slkB gene, cshA gene & fbpA gene, Database accession No. X65164, XP002213089. 09/2001 | |
| | | DEVRIESE et al., Avian Pathology, 1994, pp. 721-24, Vol. 23. | |
| | | GREENSPAN et al., Nature Biotechnology, 1999, pp. 936-37, Vol. 7. | |
| | | HAMPSON et al., Journal of Clinical Microbiology, 1993, pp. 2895-2900, Vol. 31, No. 11. | |
| | | Merck Manual On-line Streptococcal Disease (pages 1-6), retrieved from web on 11-16-2009. | |
| | | Merriam-Webster Online Dictionary, (visited 6/7/2004) <http://www.m-w.com/cgi-bin/dictionary?book=Dictionary&va=vaccine&le=19&ye=12>. | |
| | | MIKAYAMA et al., Nov. 1993, Proc. Natl. Acad. Sci. USA., pp. 10056-60, Vol. 90. | |
| | | PCT International Preliminary Examination Report PCT/NL99/00460, dated October 27, 2000. | |
| | | PCT International Search Report, PCT/NL99/00460, dated April 5, 2000, 6 pages | |
| | | RUDINGER et al., Characteristics of the amino acids as components of a peptide hormone sequence. Peptide hormones. Biol. Council, June 1976, pp. 1-7. | |
| | | SMITH et al., submitted Sept. 10, 2000, Genbank Accession No. AF306940. | |
| | | WISSELINK et al., Assessment of protective efficacy of live and killed vaccines based on a non-encapsulated mutant of Streptococcus suis serotype 2. Veterinary Microbiology, 2002, pp. 155-68, Vol. 84. | |
| | | ZHANG et al., Identification and characterization of an antigen VII family protein produced by group A streptococcus. Infection and Immunity, July 2006, pp. #20-13, Vol. 74, No. 7. | |

Examiner Signature

Date Considered

12/18/10

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant

¹Unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments or the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

10/31/07

PTO/SB/088 (10-03)

Approved for use through 7/31/2006, OMB 0651-0001

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it contains a valid OMB control number.

| | | | |
|--|---|--------------------------|----------------|
| Substitute for form 1449A/PTO | | <i>Complete if Known</i> | |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | Application Number | 10/632,117 |
| (use as many sheets as necessary) | | Filing Date | July 31, 2003 |
| Sheet | 2 | First Named Inventor | Hilda E. Smith |
| | | Group Art Unit | 1645 |
| | | Examiner Name | J. Hines |
| | | Attorney Docket Number | 2183-6055US |

| NON PATENT LITERATURE DOCUMENTS | | | |
|---------------------------------|-----------------------|---|----------------|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
| J/H/ | | COURTNEY et al., Cloning, Sequencing, and Expression of a Fluorescein/Fibronectin-Binding Protein from Group A Streptococci, Infection and Immunity, Sept. 1994, pp. 3937-46, Vol. 62, No. 9. | |
| | | DATABASE EMBL [Online] Streptococcus pneumoniae adherence and virulence protein A (pavA) gene, complete cds. 4 November 1999, XPO02332859, received from EBI accession no. EM_PRO:AF181976, Database accession no. AF181976. | |
| | | HOLMES et al., The pavA gene of Streptococcus pneumoniae encodes a fibronectin-binding protein that is essential for virulence, Molecular Microbiology, 2001, pp. 1395-1408, Vol. 41, No. 6. | |
| | | DATABASE EMBL [Online], S. gordonii partial sfbB gene, sfaA gene & fbpA gene, XPO02332860 received from EBI accession no. EM_PRO:SGSCBAG, Database accession no. X65164. 09/12/01 | |
| | | CHRISTIE et al., Expression of fibronectin-binding protein PspA modulates adhesion in Streptococcus gordonii, Microbiology, 2002, pp. 1615-25, Vol. 148. | |
| | | DE GREEFF et al., Contribution of Fibronectin-Binding Proteins to Pathogenesis of Streptococcus suis Serotype 2, Infection and Immunity, Mar. 2002, pp. 1319-23, Vol. 70, No. 3. | |
| | | European Search Report, EP 02 71 1531 dated June 22, 2003. | |
| | | ELLIS, R. W. (Chapter 29 of "VACCINES" Plotkin, S. A. et al. (eds) published by W. B. Saunders company (Philadelphia) in 1988, especially P. 571). | |
| | | HERBERT et al. (eds), The Dictionary of Immunology, Academic Press, 1995. | |
| | | GOTTSCHALK et al., Journal of Clinical Microbiology, December 1999, pp. 4262, Vol. 37, No. 12. | |
| | | SEGURA et al., FEMS Immunology and Medical Microbiology, 1998, pp. 189-93, Vol. 12. | |
| | | REAMS et al., J. Vet. Diagn. Invest., 1995, pp. 119-21, Vol. 8. | |
| | | STAATS et al., Veterinary Research Communications, 1997, pp. 381-407, Vol. 21. | |
| | | BRAZZAU et al., Microbiology, 1996, pp. 119-21, Vol. 140. | |

| | | | |
|--------------------|------------|-----------------|------------|
| Examiner Signature | 10/01/2007 | Date Considered | 10/01/2007 |
|--------------------|------------|-----------------|------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citations if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissions for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.